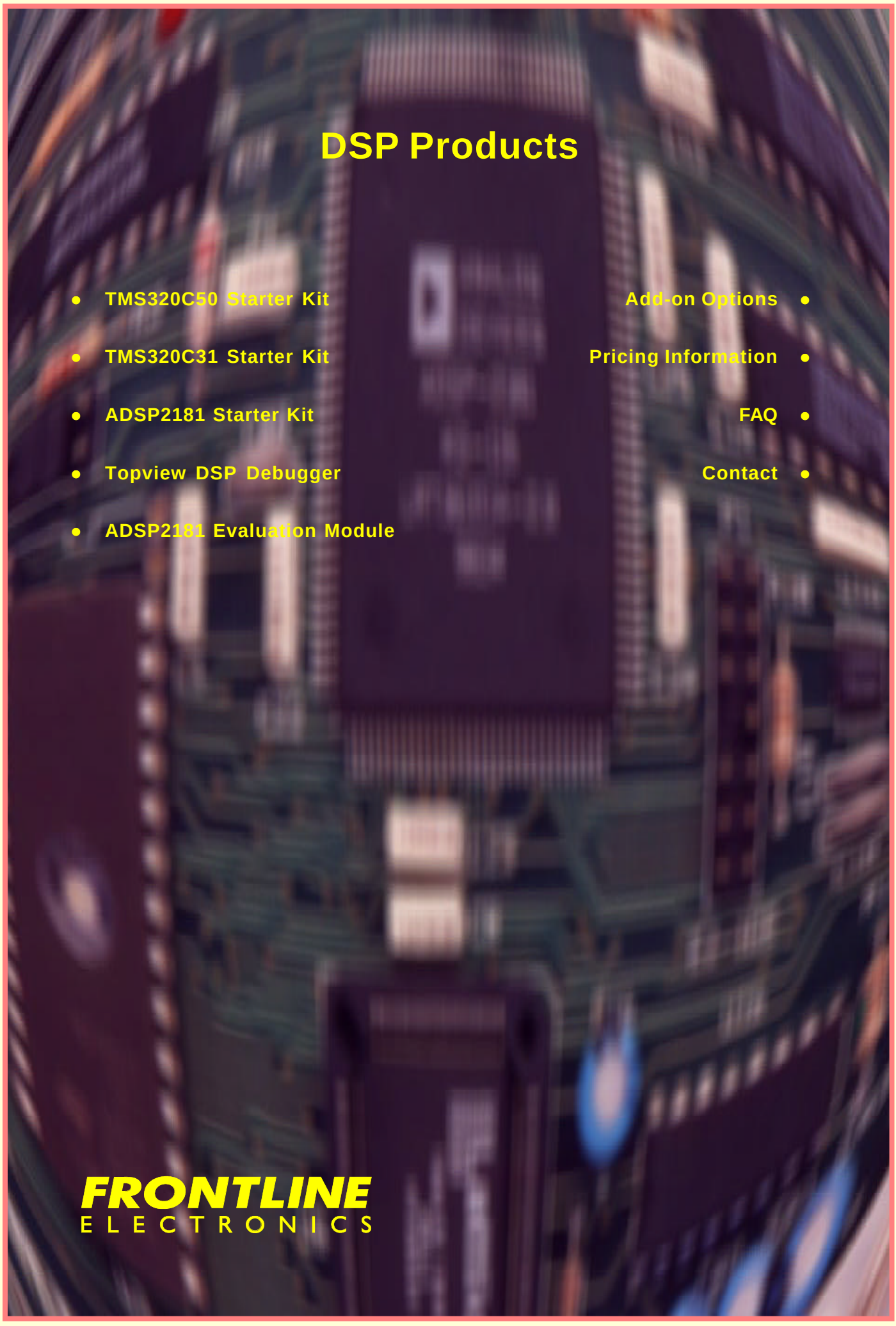

DSP Products

- TMS320C50 Starter Kit
- TMS320C31 Starter Kit
- ADSP2181 Starter Kit
- Topview DSP Debugger
- ADSP2181 Evaluation Module
- Add-on Options
- Pricing Information
- FAQ
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FRONTLINE
ELECTRONICS

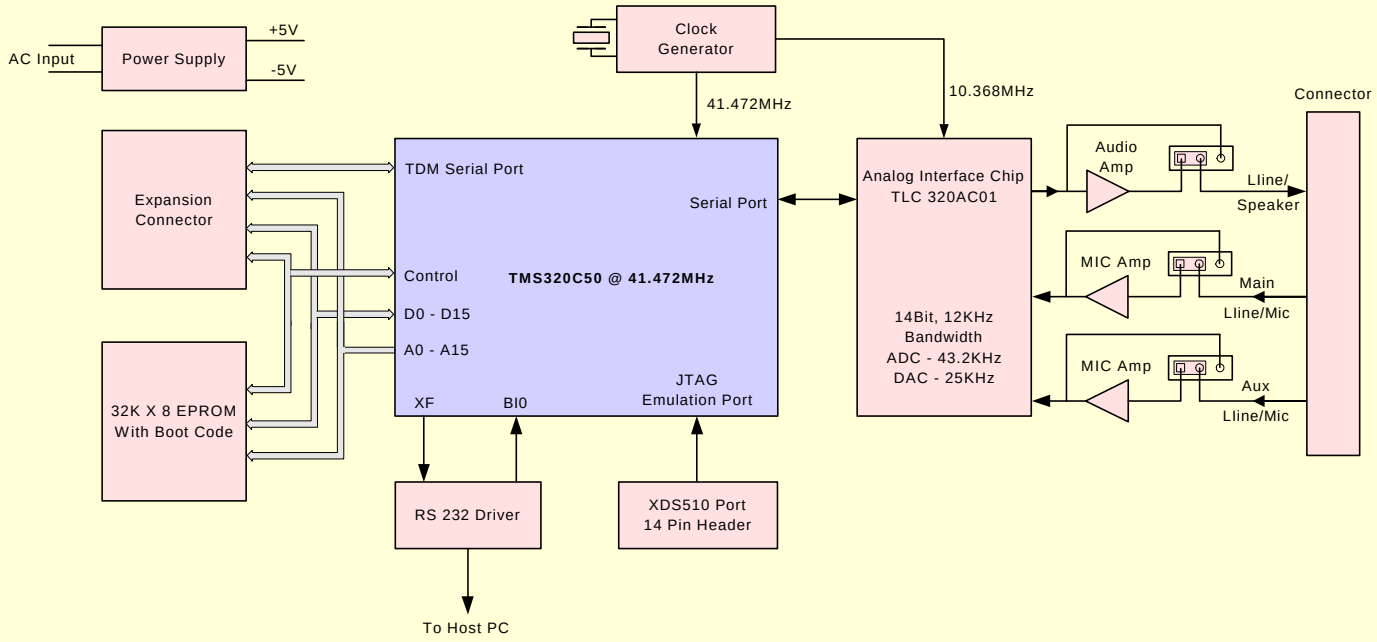
TMS320C50 Starter Kit

The TMS320C50 based DSP Starter kit is the ideal entry-level launch pad to get into the exciting DSP world. The kit sports the most popular DSP device of the Texas Instruments, TMS320C50 along with a versatile Analog Interface Chip that covers the complete audio/speech range.

To make learner's life easy, the kit comes with a graphical user interface that enables the user to navigate easily into program development process. Combined with any standard PC, the kit gives the required experimental infrastructure to study DSP concepts.

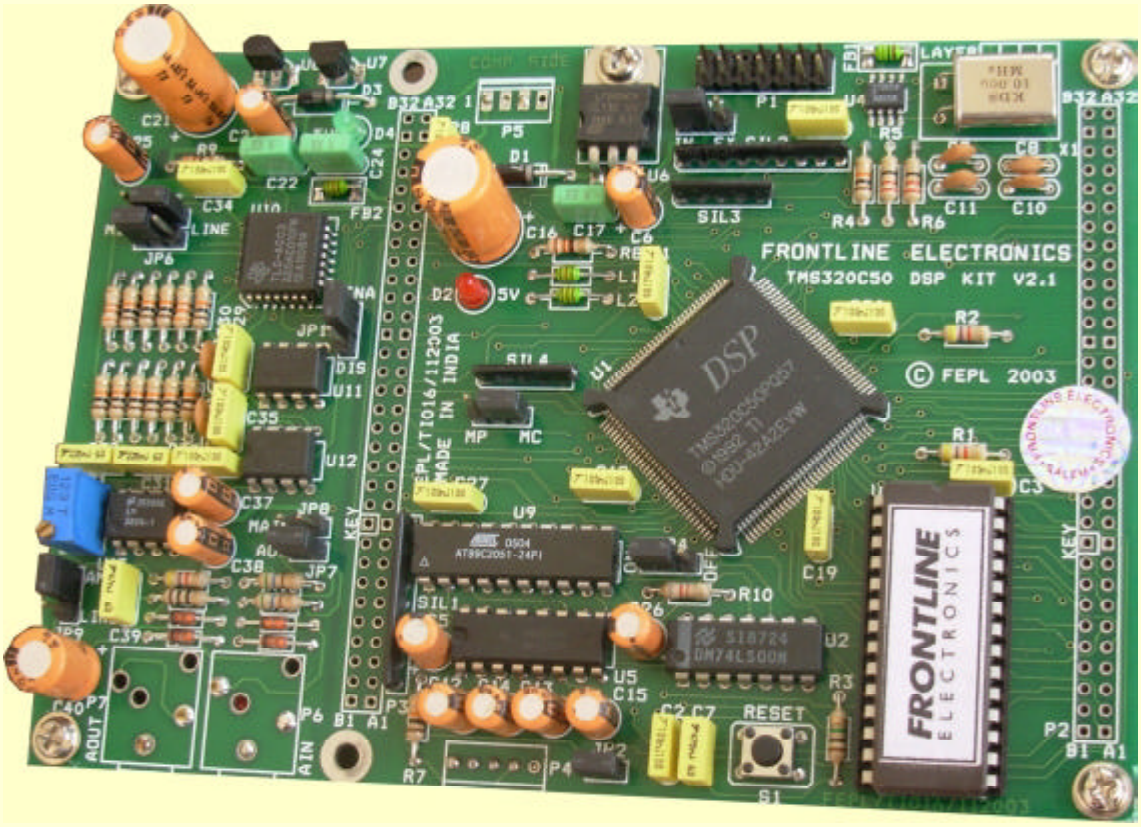
Specifications

- TMS 320C50 operating at 41MHz.
- On-chip RAM :10K Word
- 32KB PROM with communication kernel.
- Analog Interface Chip with 14 bit Analog to Digital Converter and 14 bit Digital to Analog Con verter with 16 bit dynamic range.
- Programmable sample rate up to 43KHz.
- Programmable +3V/-3V full scale input.
- Programmable +3V/-3V full scale output into 600 ohms load. It can drive an 8-ohm speaker directly.
- Programmable anti-aliasing and reconstruction filters.
- Facility to connect MIC and speaker.
- RS 232 serial port for communicating with the host PC.
- With Assembler and the Debugger software with Graphical User Interface.
- Over voltage protection for analog inputs.



TMS320C50 Starter Kit Block Diagram

TMS320C50 Starter Kit



Bundle Contents

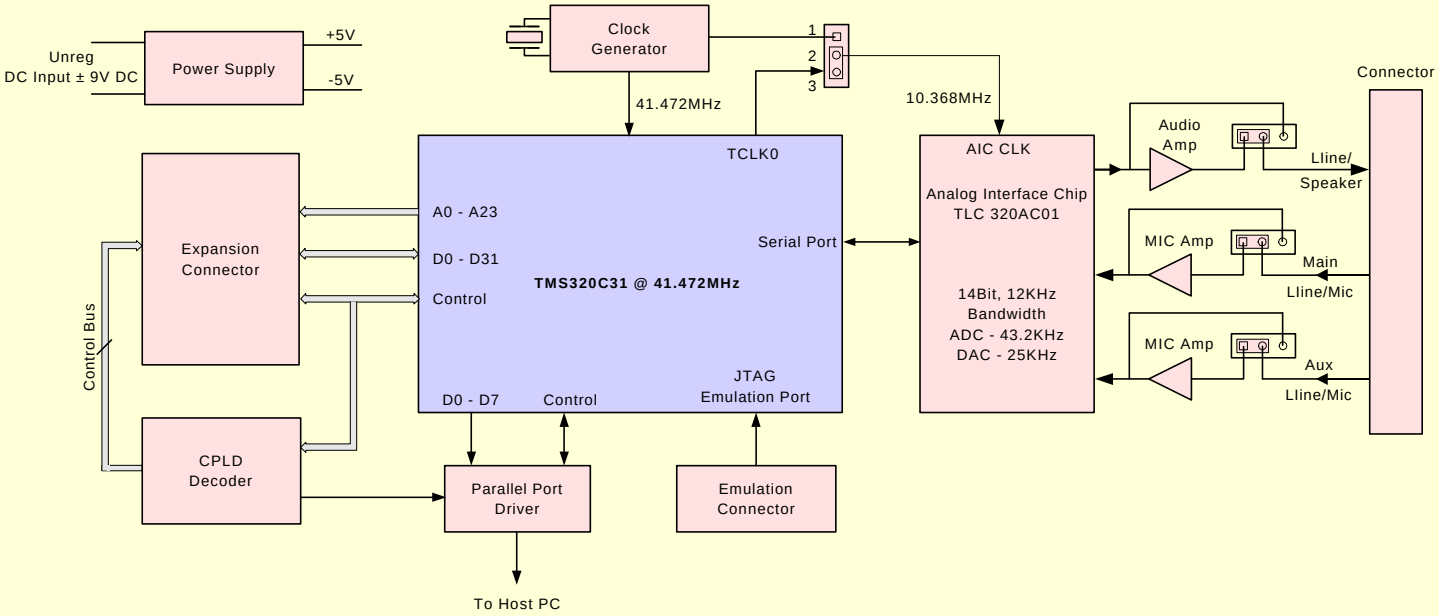
● TMS320C50 Starter Kit. ● CDROM with useful documents and software. ● Power Supply. ● Serial Port Communicating Cable. ● Analog Input/Output Cable. ● TMS320C50 Starter Kit Technical Reference Manual. ● TMS320C50 Starter Kit Experiments Manual. ● TLC320AC01 Chip Details. ● TMS320C5X User's Guide.

TMS320C31 Starter Kit

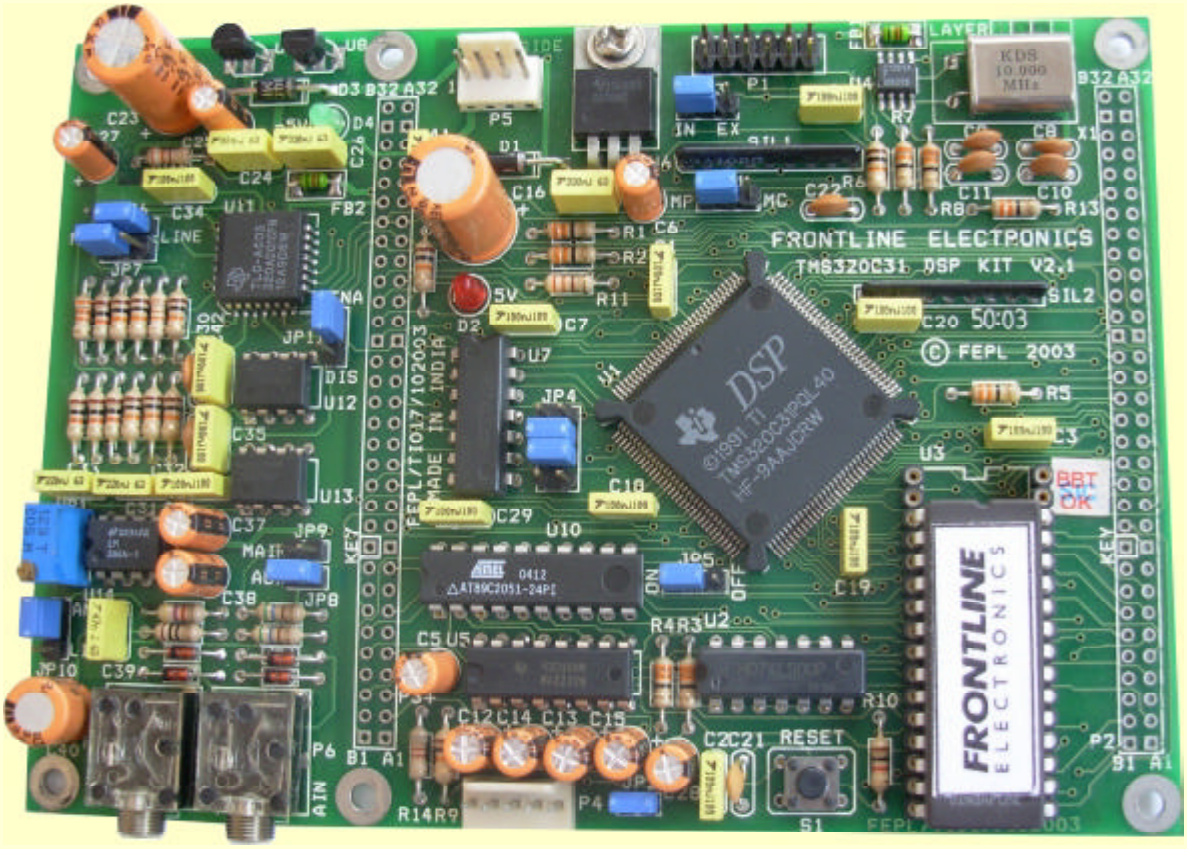
The TMS320C31 based DSP Starter Kit is the most popular and powerful entry level development tool to explore TI's most popular Floating Point processor family.It is a complete tool that encourages you to study the floating point DSP and also try many experiments in the DSP arena.

Specification

- TMS320C31 processor running at 41.472MHz.
- Analog Interface Chip with 14 bit Analog to Digital Converter and 14 bit Digital to Analog Converter with 16 bit dynamic range.
- Programmable sample rate up to 43KHz.
- Programmable +3V/-3V full scale input.
- Programmable +3V/-3V full scale output into 600 ohms load. It can drive an 8-ohm speaker directly.
- Programmable anti-aliasing and reconstruction filters.
- Facility to connect MIC and speaker.
- Over voltage protection for analog inputs.
- Communicating with the host PC through parallel port.
- With Assembler and the Debugger software with Graphical User Interface.



TMS320C31 Starter Kit Block Diagram



Bundle Contents

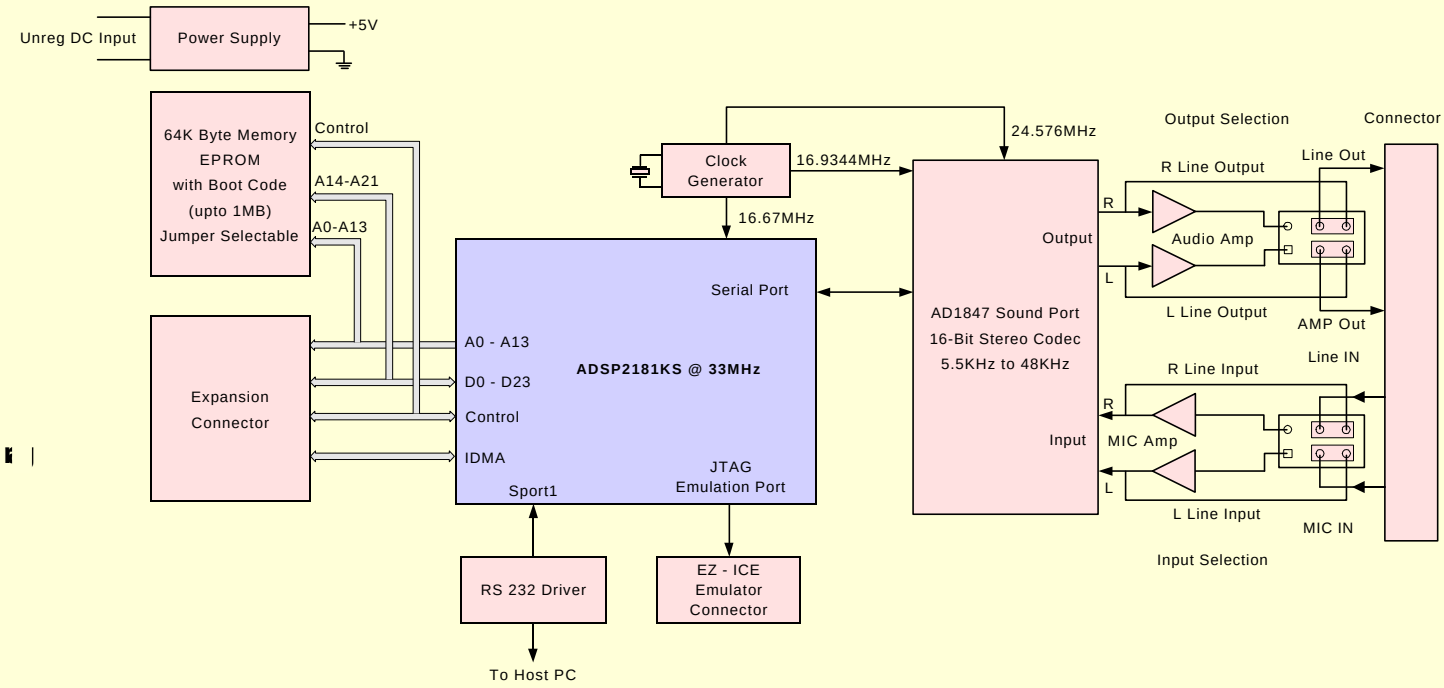
● TMS320C31 Starter Kit. ● CDROM with useful documents and software. ● Power Supply. ● Parallel Port Communicating Cable. ● Analog Input/Output Cable. ● TMS320C31 Starter Kit Technical Reference Manual. ● TMS320C3X User's Guide.

ADSP2181 Starter Kit

ADSP2181 is the most used DSP device from the Analog Devices. This starter kit is the ideal development platform that gives all the required infrastructure at an affordable cost. It is most suitable for audio/speech applications thanks to the stereo CODEC device available in the kit.

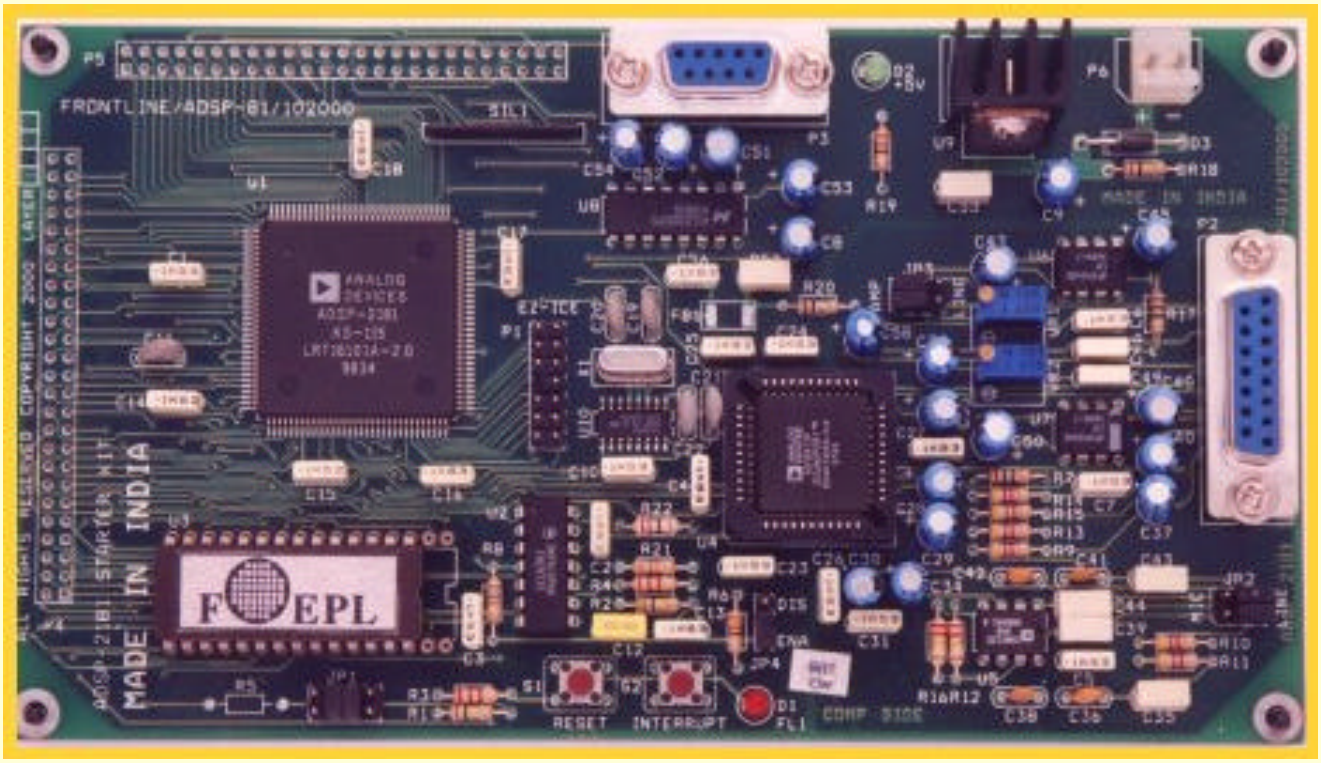
Specification

- ADSP2181 operating at 33MHz.
- Boot EPROM/FLASH memory: 64K X 8 / 128 K X 8
- On-chip program memory: 16K X 24.
- On-chip data memory: 16K X 16.
- Built-in pre amplifier and power amplifier for connecting the microphone and speaker directly.
- 16 bit serial port stereo CODEC using AD1847. Sample rate varies from 5.5KHz to 48KHz.
- RS 232 serial port for communicating with the host PC.
- Development software with GUI facility.
- Ideal solution for first time ADSP users.



ADSP2181 Starter Kit Block Diagram

ADSP2181 Starter Kit



Bundle Contents

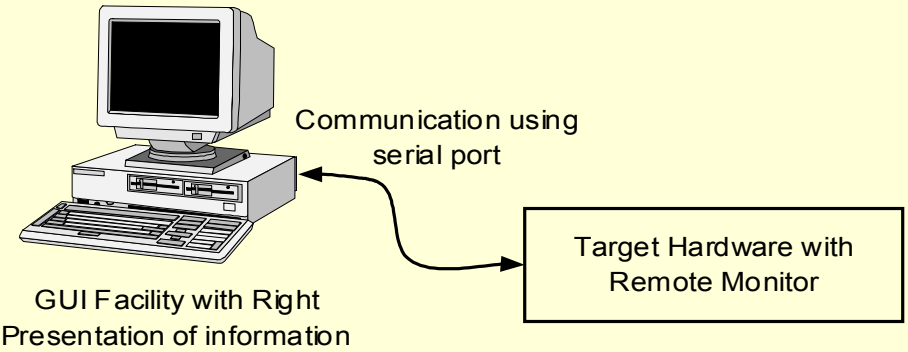
● ADSP2181 Starter Kit. ● CDROM with useful documents and software. ● Power Supply. ● Serial Port Communicating Cable. ● Analog Input/Output Cable. ● ADSP2181 Starter Kit Technical Reference Manual. ● ADSP2181 Starter Kit Experiments Manual. ● AD1847 Chip Details. ● ADSP - 2100 Family User's Manual.

Topview DSP Debugger

Topview DSP Debugger is an important facility meant for developing DSP based embedded solutions. Debugging is an inevitable part in any tool suite required to develop applications in real time. A right debugging tool may save a lot of development time in any product development process.

Here details of Topview DSP Debugger meant for TMS320C50 is given.

This Debugger is a two part program in which major part stays inside the DSP hardware and keeps track of internal operation of the C50. This information is later transferred to the host computer to which it is connected. Since it is residing in the target hardware, sometimes it is also called 'Remote Monitor'



Second part of the debugger operates in the host computer and is responsible for presenting the information received from the target DSP hardware in a most useful format using a GUI environment.

When you establish a reliable communication link between the DSP hardware and the host personal computer, the Topview Debugger automatically comes into action.

The Debugger presents a GUI environment in which the ClearView Window structure gives facility for viewing complete information on the internal working of the C50.

Debugger sports following features

- ClearView Window structure.
- Facility to develop target program code.
- Powerful program execution features.

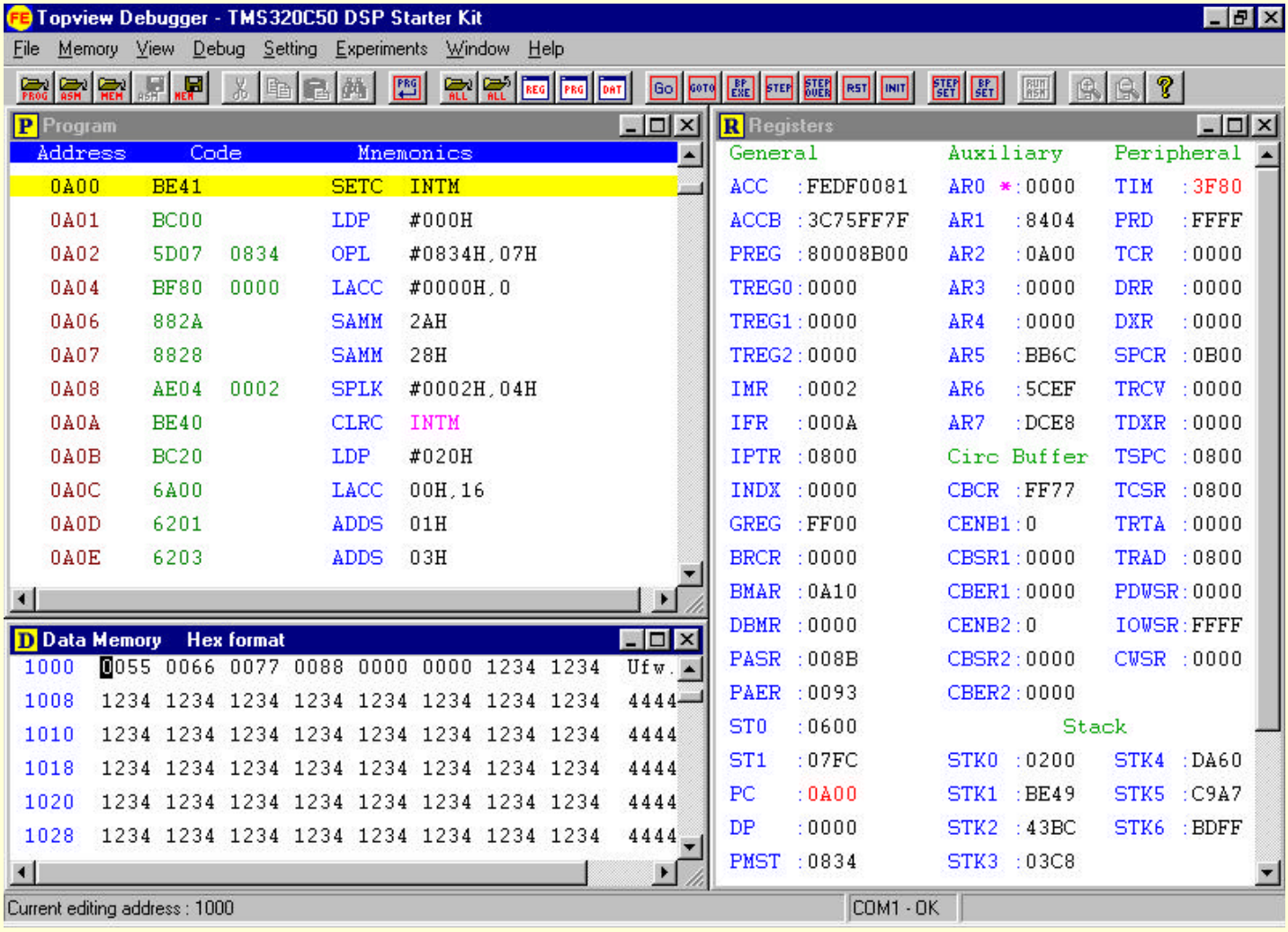
Topview DSP Debugger

- Graphical facility to generate Time Domain and Frequency Domain Waveforms.
- Built-in program examples.

Each of these facilities are meant to give the DSP user the required power to study the field proven DSP hardware, then undertake DSP experiments to sharpen his/her knowledge and impart required confidence to undertake DSP based applications with ease.

ClearView Window Structure

This is an optimized structure where windows are strategically placed in the display. Total display area is divided into three parts, which display the program lines, contents of the data memory and the contents of all the internal registers.

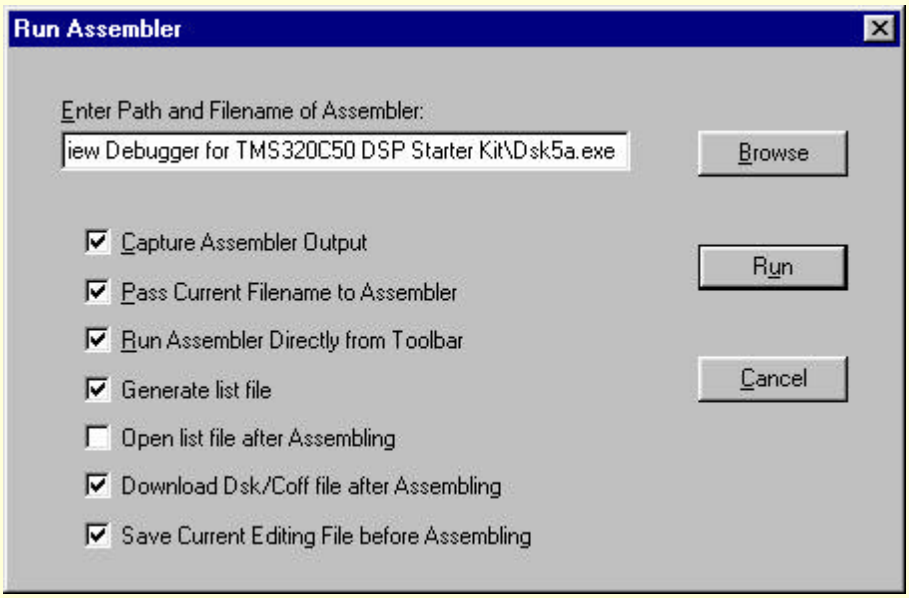


Developing Target Program Code

Topview Debugger enables you to develop your target program code in convenient ways. The powerful built-in editor gets your raw program code and calls an external assembler software and pass the edited program into that for assembling.

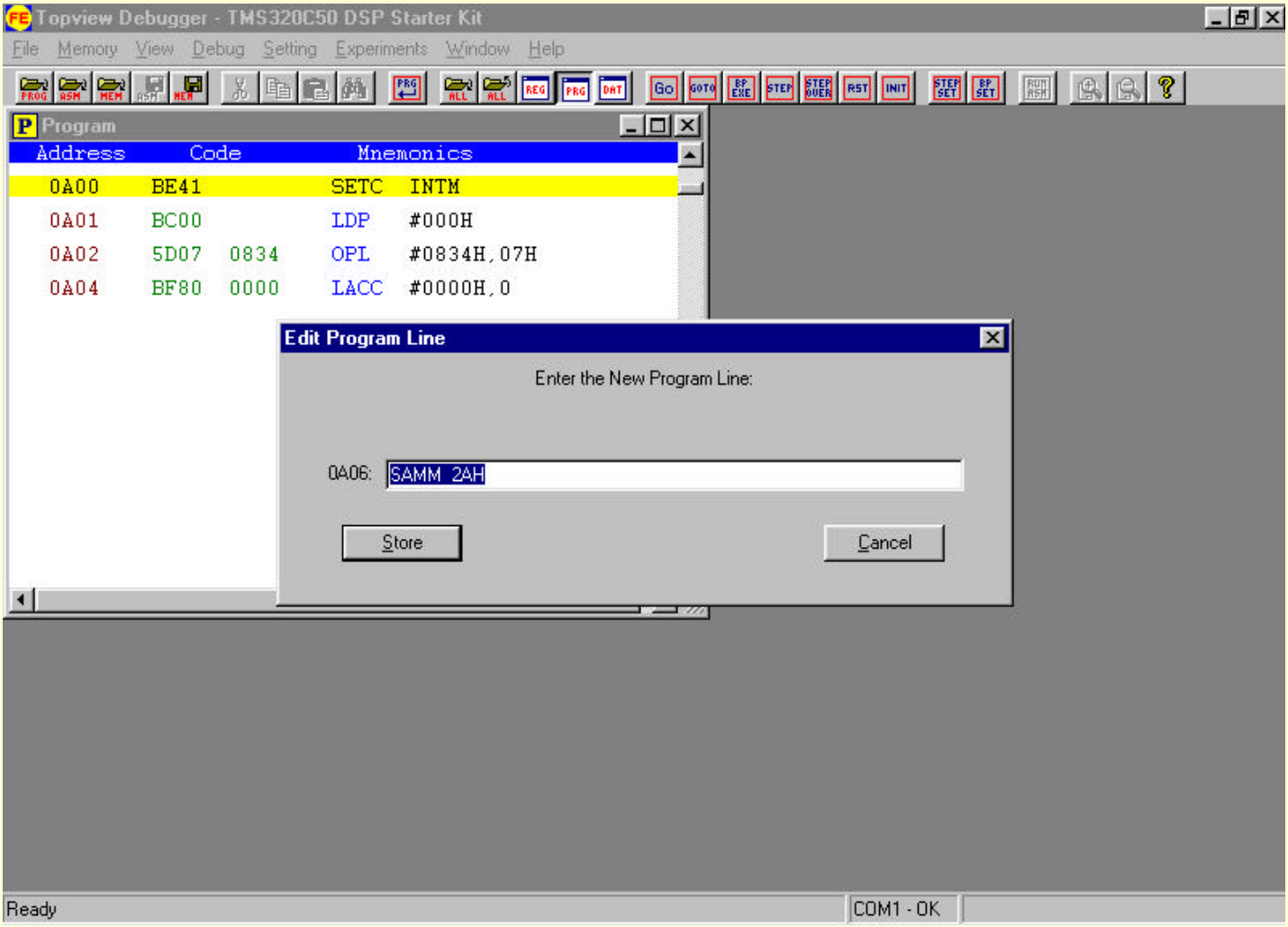
The assembler output can be captured and viewed along with your input program in the editor. Also, viewing the list file (coming out of assembler) by the side of input assembly file enables you to view the details of error and the location. You can easily correct input file errors before assembling it again. Useful feature when troubleshooting the program.

There is an optional facility to load the assembled program into the specific DSP program memory space.



Debugger also sports a single line assembler in which you can activate the program memory window and key in program lines one by one.

Topview DSP Debugger



Program Execution Facilities

Topview Debugger gives you the power to execute your target program code in a variety of ways to suit your needs.

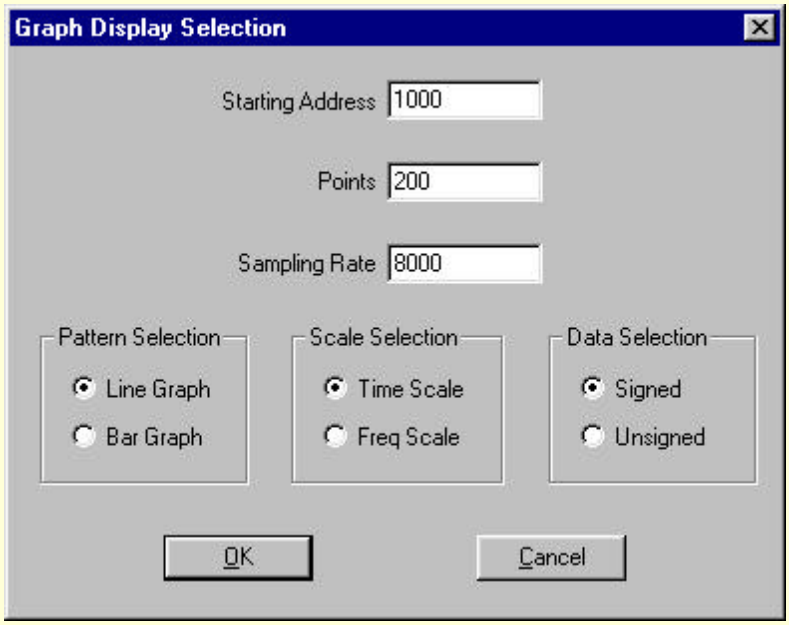
- Free running program execution.
- Program execution using multiple breakpoints.
- Executing program in single steps.
- Facility to execute CALLS in single steps.

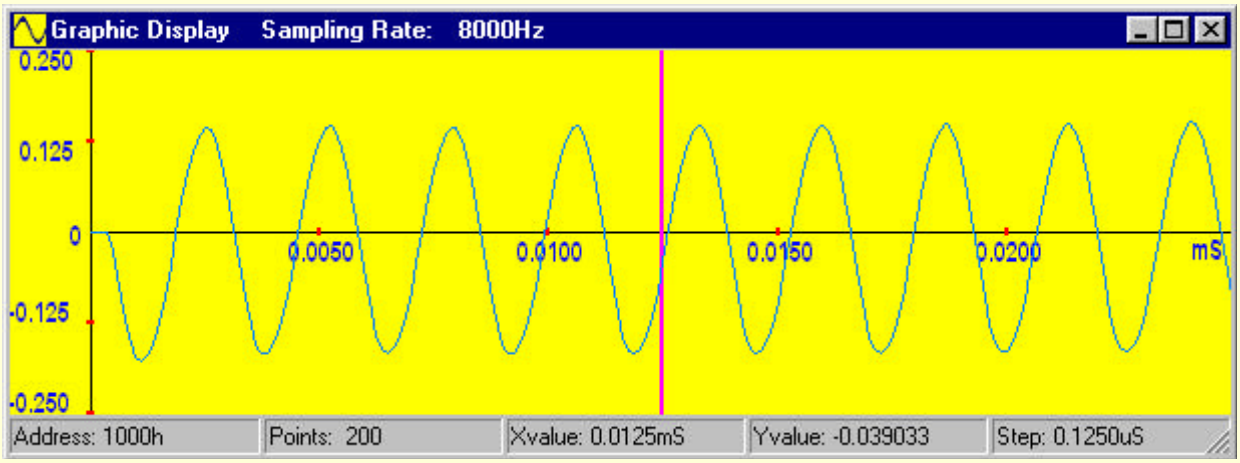
During each execution, the ClearView updates all the relevant windows and present changed contents in different colors to draw your attention.

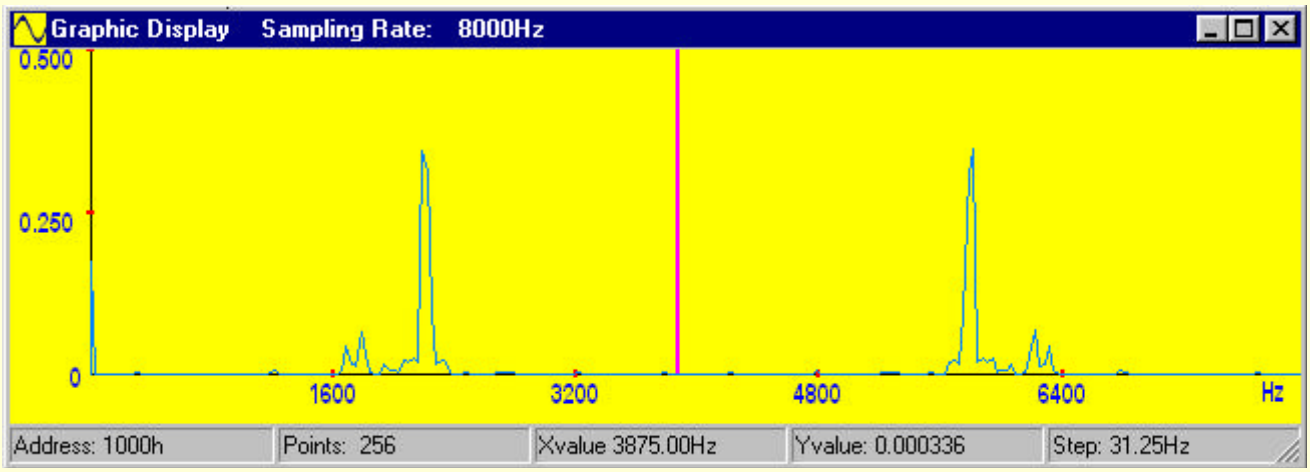
These facilities will become very helpful when developing complicated program codes.

Graphical Facility to generate Time Domain and Frequency Domain Waveforms.

This is another useful feature in which you can convert the sampled data into meaningful waveforms. You can generate both Frequency Domain and Time Domain Waveforms. These graphical windows are complete in all respects and you can read any coordinate of the waveform by just moving the mouse cursor.







You can generate line graphs and bar graphs. Zoom in/out facilities are also available. You can even print out this waveform using any standard printer.

Built-in Program Examples

Since the DSP subject is a complicated one, the debugger comes with a lot of tested and proven examples to give you a quick start in learning the DSP algorithms. These examples cover a wide range of algorithms.

Download

Topview DSP Debugger Software User Guide will be made available in our website for your reference.

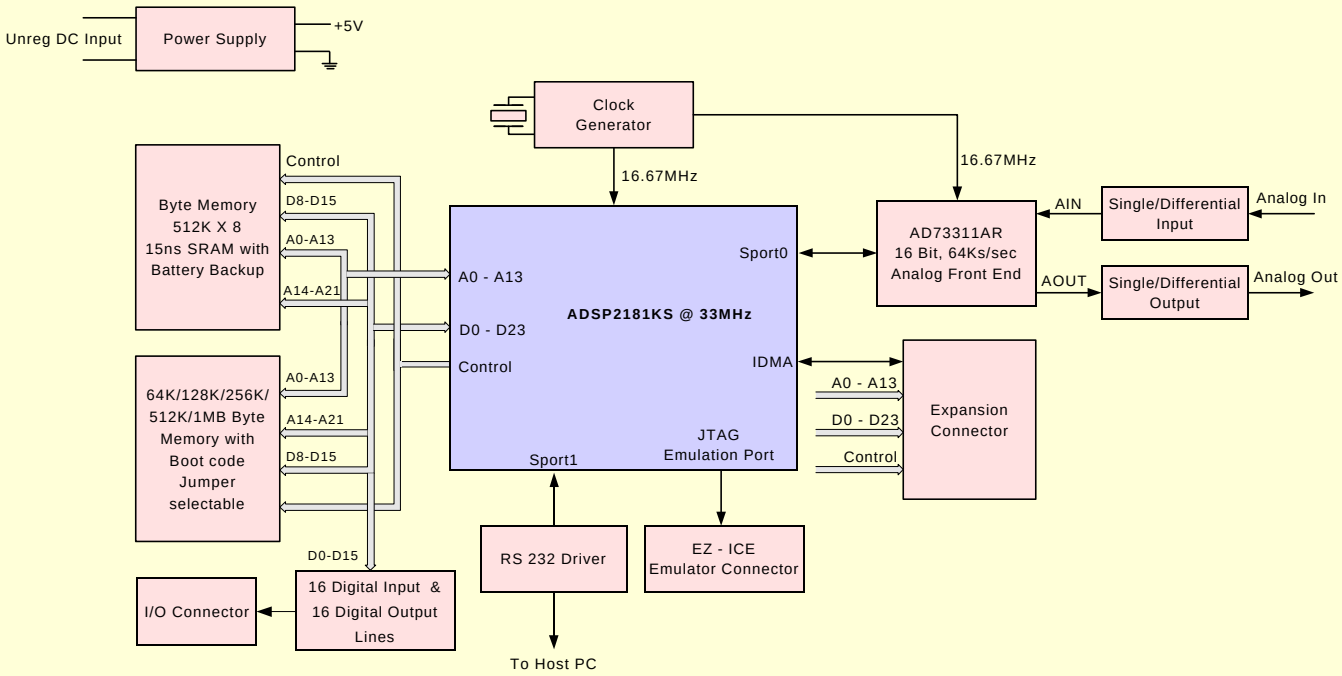
ADSP2181 Evaluation Module

This Evaluation Module is meant for a range of audio/speech and industrial applications. The board comes with 512K byte high-speed static RAM, medium speed Analog I/O lines. The board can also be used in standalone applications.

Specification

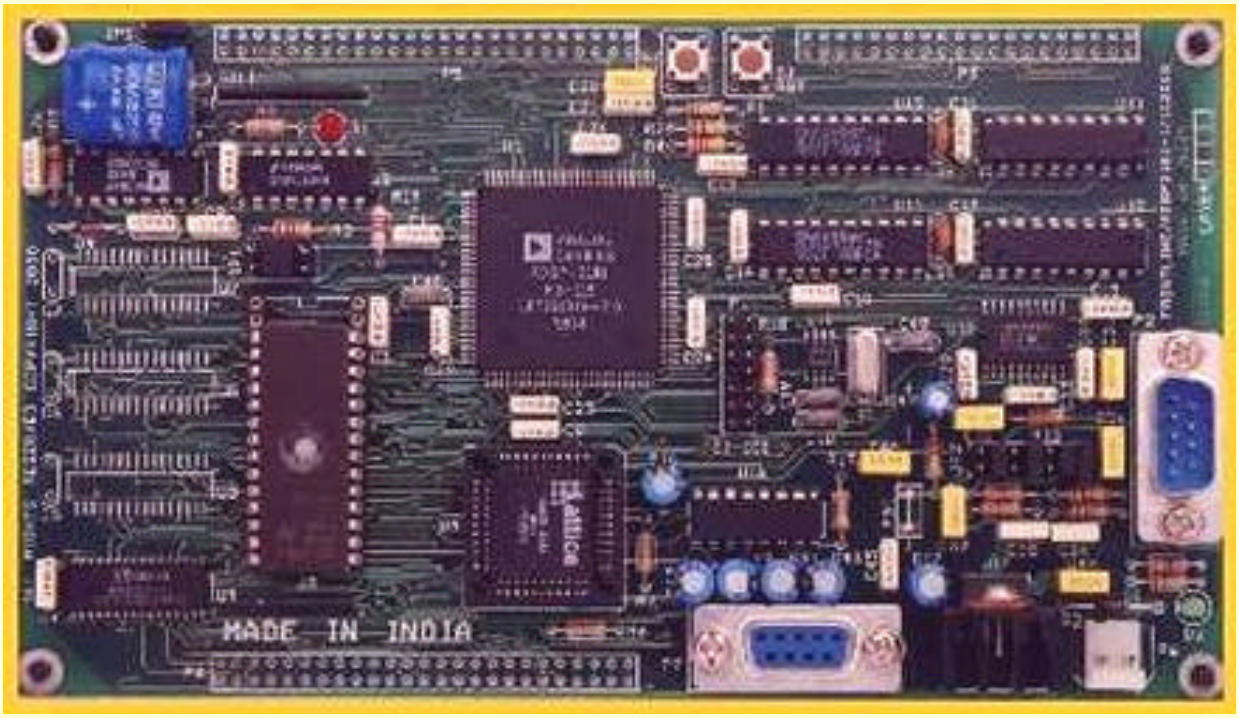
- ADSP2181 operating at 33MHz.
- Boot memory: 64KBytes / 128 KBytes EPROM
- On-chip program memory: 16K X 24.
- On-chip data memory: 16K X 16.
- External Byte memory for data storage: 512KBytes. Battery backup is available to this memory space.
- 16 bit Analog to Digital Converter and 16 bit Digital to Analog Converter with sampling rate: 64K samples/sec.
- Programmable input/output sample rates.
- Programmable input/output gain.
- RS 232 serial port for communicating with the host PC.
- On-board power regulator.
- ADSP bus lines are available for user's applications.
- With application software to download and execute user programs.
- Suitable for standalone applications.

ADSP2181 Evaluation Module



ADSP2181 Evaluation Module Block Diagram

ADSP2181 Evaluation Module



Bundle Contents

● ADSP2181 Evaluation Module. ● CDROM with useful documents and software. ● Power Supply. ● Serial Port Communicating Cable. ● Analog Input/Output Cable. ● ADSP2181 Evaluation Module Technical Reference Manual. ● AD1847, AD73311AR Chip Details. ● ADSP - 2100 Family User's Manual.

Add-on Options

Mounting the DSP kits/Modules in a closed wooden cabinet with the following facilities.

- RFI filtered linear power supply.
- A basic function generator with the frequency range up to 20KHz.
- Sine, square and triangular signals limited to DSP ADC input range.
- Facility to measure frequency output for user convenience.

Pricing Information

1. TMS320C50 Starter Kit	: Rs.9,500/-
2. TMS320C31 Starter Kit	: Rs.9,500/-
3. ADSP2181 Starter Kit	: Rs.9,500/-
4. ADSP2181 Evaluation Module	: Rs.12,500/-
5. DSP Add on Module	: Rs.3,500/-

Taxes and other duties are extra as per actuals. Materials can be delivered through courier on COD basis and also supplied through bank

FAQ

1. Who manufactures the DSP Hardware?

We, Frontline Electronics manufacture all the DSP Hardware mentioned in the catalog. We have required technical infrastructure and the hardware and software development tools to execute DSP solutions.

Because of this, we can offer these DSP Hardware at a very competitive cost to the customers. We can also execute the orders faster than suppliers who market imported hardware.

Hardware support and after sales service have become an integral part of our marketing and all our customers are assured of prompt care even after many years of purchase.

2. Software support.

All the DSP hardware are designed to be compatible with the software available from the DSP device manufacturers. In the hardware, we incorporated enhancements wherever it is possible. But we maintain the compatibility with the respective software.

The DSP hardware comes with the manufacturer's software tools.

We are developing suitable debugging software, Topview DSP Debugger for these DSP hardware. Since the manufacturer's software runs in the DOS environment, we have planned to give a Windows based GUI environment.

We have windows based GUI Debugger meant for the TMS320C50 DSK under beta testing. We shall launch the same in 4/6 weeks time. It comes with many state of art debugging facilities in a versatile GUI environment. All our customers may get the software free of cost. Existing DSK owners can get the software at an attractive cost.

3. Who are all your current customers?

We are the leading DSP product supplier among the Technical institutions of TamilNadu. Almost all the major engineering colleges have been using our DSP product for the past 10 years in their laboratory.

We also have supplied other DSP hardware and software tools from the Device manufactures to these institutions.

4. FE's Experience in DSP?

We have been using DSP technology for the last 13 years. We are very familiar with technologies of both Texas Instruments and Analog Devices.

Basically we emphasis on making DSP hardware easy one for the first time users and laboratory environments.

We have developed many easy to learn experimental procedures to enable our customers clearly understand the DSP concepts. Our experimental manuals are most sought after by Engineering College staff members.

Also, recently we have conducted a short term DSP Hardware Workshop to the Engineering College staff members in association with Anna University in College of Engineering, Guindy, Chennai.

Apart from this, we regularly conduct DSP courses in our Training Division, Frontline Academy.

So, all our DSP products have distinctive technical advantage and enable the DSP users get the required confidence in using DSP in their applications.

5. What are all the future FE's DSP Products?

First and immediate product is the Topview DSP Debugger, windows GUI software meant for the TMS320C50 DSP starter kit. It is under evaluation and testing and will be launched in about 4/6 weeks.

In the TI's DSP range, we concentrate mainly on the popular Floating-Point Processor family, TMS320C3X and there is an evaluation board on the anvil. This board sports high speed, multichannel data acquisition upto 1 MSPS with onboard high speed SRAM upto 4Mbyte.

There is another evaluation board meant for TMS320C50 under development. This may come with medium range (upto 300KHZ), multichannel data acquisition facilities.

For the AD's DSP devices, the basic starter kit will be upgraded very soon with latest Analog I/O device that gives two channels of 16 bit ADCs and DACs with sampling rate upto 64Kbps.

So all our customers are assured of continued availability of range of useful DSP solutions for their requirements.

With this long-term commitment on the DSP technology, we are eagerly looking forward to become your partner when you take the tough journey in DSP.

6. Possibility of Customized DSP solutions?

We have proven design capability to develop customized DSP solutions meeting customer's exact requirements. We can develop DSP solutions based on ADSP 218X,TMS320C50 and TMS320C3X and TMS320C5000.

Kindly contact us with your specific requirements.

7. Servicing of Faulty DSP Hardware?

Yes, we can undertake servicing of faulty DSP starter kits using ADSP21XX, TMS320C5X and TMS320C3X. Since we have most of the critical devices in stock, we assure you of fast servicing of these starter kits for your convenience.

8. Why Add on options should be considered very seriously?

The add-on options give you a protective environment where you can use these DSP hardware without facing any problem. As you know, DSP studies require usage of signals in most of the time and this add-on option enables you to carry out your studies without using expensive Function Generators, Frequency Counters, DC Regulated Power Supplies. The output of the function generators is conditioned to meet the input range restrictions (-/+3v) of AIC devices of the DSP hardware. The frequency counter indicates the frequency of the input signal waveform and the built-in RFI Noise filter of the power supply eliminates the unwanted noise problems when you seriously indulge in your studies.

As a result, you can continue with your DSP experiments without worrying about the operating environment.

We also draw your attention towards the simple fact, students, during experiments, tend to turn up or down the function generator's knobs without thinking about consequences.

So, the add-on option is the solid protection you can provide to the DSP hardware during experiments.

Contact

We keep all relevant information on DSP Products, Tools and Development Software packages in our website, www.Frontline-Electronics.com.You can download the required details for your reference.

You can also send an email to feplslm@frontlinemail.com for any specific information/clarification. Always it is our pleasure to take an extra step to meet your exact needs.

Our address : Frontline Electronics Pvt. Ltd.,
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India.
Phone : 0091 427 244 9238 / 320 9844.
Fax : 0091 427 243 1312.